

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**034/1**

**AGRICULTURAL SCIENCE 1**  
(For School Candidates Only)

**Time: 2:30 Hours**

**Wednesday, 18<sup>th</sup> November 2015 p.m.**

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**Instructions**

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **one (1)** question from section C.
3. Read the instructions under each section carefully.
4. Cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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## SECTION A (20 Marks)

Answer **all** questions in this section.

1. For each of the items (i) - (x), choose the correct answer among the given alternatives and write its letter beside the item number in the answer booklet provided.
- (i) Animals giving out a lot of tears from the eyes is one of the typical symptoms of  
A mastitis                                      B anthrax                                      C blackquarter  
D rinderpest                                      E brucellosis.
- (ii) Manure that releases its nutrients gradually as a result of microbial activity in the soil is called  
A kraal                                      B farmyard                                      C green  
D compost                                      E poultry.
- (iii) The step in innovation adoption process where a farmer mentally thinks about and applies the idea to his/her own situation is called  
A trial                                      B awareness                                      C evaluation  
D interest                                      E adoption
- (iv) What would the farmer realize upon enterprise substitution where the effect projected is extra costs 3,200/=, costs saved 4,760/=, revenue lost 20,000/= and extra revenue 14,400/=?  
A net profit of 4,040/=                                      B net profit of 7,160/=  
C net loss of 4,040/=                                      D net loss of 7,160/=  
E net profit of 23,200/=
- (v) Wood can be prevented from fungal attack by the use of  
A sodium dichromate                                      B old engine oil  
C tar                                      D creosote  
E pentachlorophenol.
- (vi) Tomatoes grow well in  
A cold climates                                      B excessive humid conditions  
C high temperatures                                      D warm climates  
E dry conditions.
- (vii) In a mouldboard plough, the part that is concerned with cutting a furrow slice is called  
A land side      B share      C frog      D beam      E standard.
- (viii) Which one of the following causes negative soil pollution?  
A pesticides                                      B domestic wastes  
C herbicides                                      D radioactive substances  
E overgrazing.

- (ix) Propagation of fruit crops that involves joining of a small piece of shoot onto a shoot containing a root system with good characteristics is referred to as  
 A layering                                      B budding                                      C grafting  
 D division                                      E cutting.
- (x) In scientific investigation procedures, experimentation is followed by  
 A data collection                                      B observation                                      C conclusion  
 D data analysis                                      E measurement.

2. Match the items in **List A** with the responses in **List B** by writing the letter of the correct response beside the item number in your answer booklet.

LIST A	LIST B
(i) Tomato	A. <i>Daucus carota</i>
(ii) Pea	B. <i>Lactuca sativa</i>
(iii) Cabbage	C. <i>Hibiscus esculentus</i>
(iv) Local spinach	D. <i>Lycopersicon esculentum</i>
(v) Sweet pepper	E. <i>Allium porrum</i>
(vi) Lettuce	F. <i>Brassica oleraceae</i>
(vii) Okra	G. <i>Allium cepa</i>
(viii) Egg plant	H. <i>Capsicum annum</i>
(ix) Carrot	I. <i>Pivum sativum</i>
(x) Onion	J. <i>Citrullus lanatus</i>
	K. <i>Amaranthus hybridans</i>
	L. <i>Beta vulgaris</i>
	M. <i>Solanum melongena</i>
	N. <i>Cucumis sativa</i>
	O. <i>Solanum nigrum</i>

## SECTION B (60 Marks)

Answer **all** questions in this section.

3. (a) What do you understand by the term ‘hypothesis’ as it is used in scientific investigation procedure? **(1 mark)**
- (b) Imagine that, for several seasons your school farm has been experiencing low maize production despite the fact that:
- Land preparation and planting are done on time using recommended certified seeds.
  - Proper spacing is used.
  - There is reliable and well distributed rainfall.
  - Weeding is done on time and
  - Pests and diseases are managed accordingly.
- Design a scientific investigation procedure that supports your hypothesis to investigate the cause of the problem. **(5 marks)**
4. (a) Explain briefly three considerations in starting fish farming **(3 marks)**
- (b) (i) What are the two advantages of fish farming? **(2 marks)**  
(ii) Account for four methods of preserving fish. **(4 marks)**
5. (a) (i) Differentiate macro from micro plant nutrients. **(2 marks)**  
(ii) A careful observation on a certain plant showed that, the young leaves of the first plant became chlorotic in areas between veins and later on the leaves turned completely white. Identify the nutrient that was deficient in the plant and state its role. **(3 marks)**
- (b) Examine four effects caused by excess supply of nitrogen to the plant. **(4 marks)**
6. (a) What is a balance sheet in farm book keeping? **(1 mark)**
- (b) When valuation was done at a school farm on 30<sup>th</sup> December 2011, the situation was as follows:
- There were several items in the store which had been bought on credit.  
These include:-  
20 bags of broilers’ mash each 20,000/= bought from Kisiju Millers.  
30 bags of fungicide worth 12,000/= obtained from TFA.  
20 bags of NPK fertilizer worth 200,000/= bought from Kilimo Traders.
- Payments for all of the above items had not yet been done. In addition there were implements worth 40,000/= and maize bags worth 150,000/=. The farm had 200,000/= at CRDB bank and 100,000/= on hand.
- Prepare a balance sheet of the school farm as at 30<sup>th</sup> December 2011. **(6 marks)**

7. (a) (i) Explain briefly why it is likely for the extension work to be more effective when it is conducted by a female extension workers than men. **(2 marks)**  
 (ii) Why is it important for the extension worker to win the support of the local leaders in the community? **(1 mark)**
- (b) During farm visits in the village, an extension worker discovered that one farmer had not used correct spacing in planting the maize seeds. The extension worker started blaming the farmer and ordered for the maize seeds to be replanted while simply mentioning the correct spacing to be used. When the farmer wanted to explain something, the extension worker interrupted, and because it was 3:30 pm by that time, the extension worker postponed the visit to other farms promising to continue in the following day. Comment on the behavior shown by the extension worker as far as the desirable qualities of the extension agent are concerned. **(5 marks)**
8. Cassava is one of the root crops that farmers in Tanzania are encouraged to grow.
- (a) (i) Write down the scientific name for cassava. **(1 mark)**  
 (ii) State four advantages of growing cassava. **(2 marks)**
- (b) (i) Why nitrogenous fertilizers are not recommended when growing cassava? **(1 mark)**  
 (ii) Briefly describe the procedure for propagating cassava. **(3 marks)**
9. (a) What do you understand by the following terms as they are used in livestock production?  
 (i) Hay  
 (ii) Silage **(2 marks)**
- (b) (i) Assess the importance of hay and silage in livestock production. **(2 marks)**  
 (ii) Briefly describe the process of making hay. **(3 marks)**
10. (a) What is meant by draught animals? **(1 mark)**
- (b) Briefly explain four advantages and two limitations of using draught animals in agriculture. **(6 marks)**

### SECTION C (20 Marks)

Answer **one (1)** question from this section.

11. Soil pollution causes environmental degradation. Explain four causes of soil pollution and suggest six suitable measures to manage the environment from soil pollution.
12. Besides having many advantages, goat farming is rarely practiced in some parts of Tanzania. Account for twelve advantages of goats and explain any four problems of keeping goats.
13. Explain seven problems associated with marketing of agricultural produce and propose possible solution for each problem.